

Assessment of temperament in *Rusa timorensis* and its relationship to stress 1

ABSTRACT

The delayed domestication of *Rusa timorensis* may be associated with their poor temperament and to date there is no published information on the temperament of the farmed *R. timorensis*. Understanding of the *R. timorensis* temperament and selection program for its evaluation in a breeding herd is important not only for *R. timorensis* farming but also to other types of animal production. We investigated the temperament of *R. timorensis* ($n = 17$) raised in the tropics and determined its relationship with stress. A distance of 13.2 m was fixed for the measurement of flight times. *Rusa timorensis* hinds with rapid speed are considered temperamental. Each *R. timorensis* hind was earmarked for a crush test score between 1 and 5; 1 represents calm and 5 represents highly agitated *R. timorensis*. Stress was determined by measuring plasma cortisol using a cortisol RIA kit and live weight gain was determined by weighing the animals weekly. The hinds were aged using their date of birth records. We found a strong negative correlation between flight time, crush score, and plasma cortisol concentration ($P < 0.05$). Animals with very poor temperament have elevated plasma cortisol level and lower weight gain ($P < 0.05$). It was concluded that flight time, crush score, and plasma cortisol concentration could be used for selecting *R. timorensis* hinds based on temperament for the breeding herd. This method is quick and easy to implement on a farm; therefore, it remains the test choice for selecting animals based on temperament for the breeding herd.

Keyword: Deer farming; Domestication; *Rusa timorensis*; Stress; Temperament